

SAHGB Annual Symposium 2017

Beyond 'By': Towards an inclusive architectural history

Saturday 3rd June 2017

Richard Brook | Manchester School of Architecture

Regionality: agency and authorship in architecture.

The story of the National Computing Centre - White Heat, False Logic.





Ferranti Factory, Wythenshawe, Manchester, 1947-54
W. Arthur Gibbon for Cruickshank & Seward

Image courtesy MMU Special Collections



International Computers Limited, Manchester, 1956-69
John Seward for Cruickshank & Seward

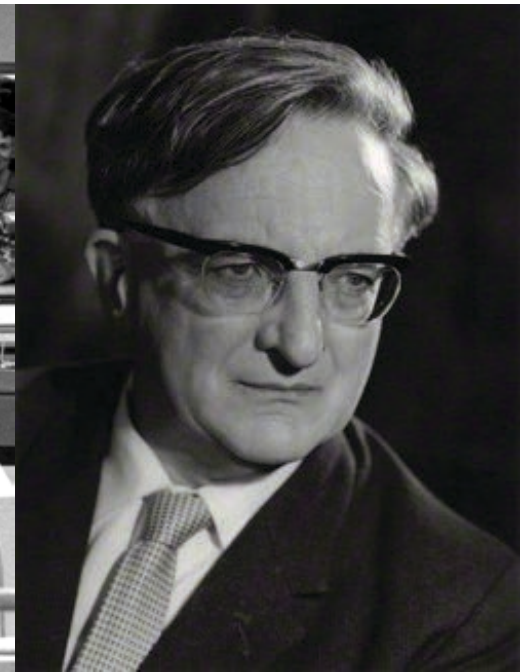
Image courtesy MMU Special Collections



Freddie Williams and Tom Kilburn



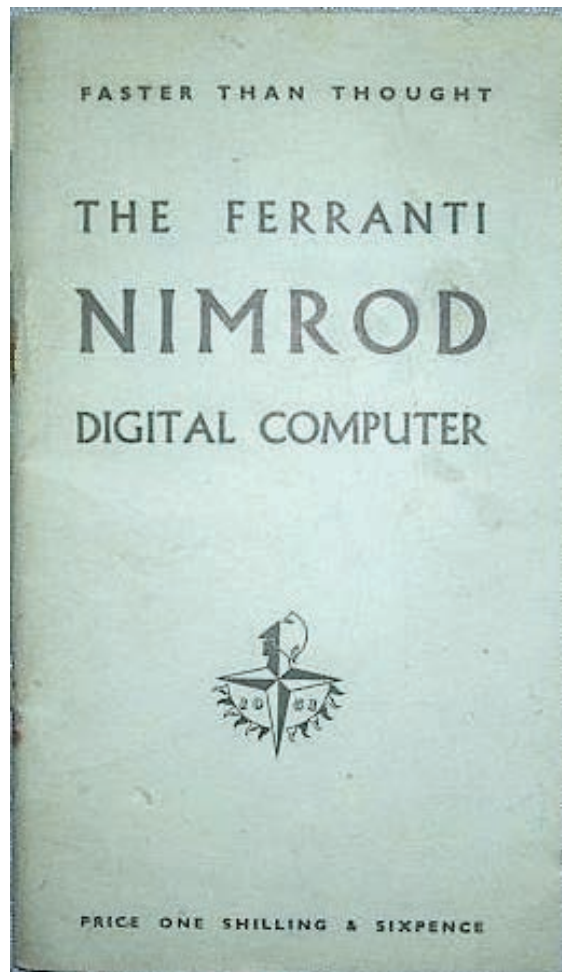
Peter Hall



Bertram Vivian Bowden

Bowden was educated at Chesterfield Grammar School and Emmanuel College, Cambridge. He worked with Ernest Rutherford in the 1930s, with whom he co-authored papers on the properties of gamma radiation. During the war he was posted to Washington D.C. and Massachusetts Institute of Technology (MIT) to work on the development of radar. He led a British team in his role as principal scientific advisor to the Ministry of Supply's Telecommunications Research Establishment (MSTRE). This exposure to the situation of military technological research in well-funded higher education institutions dramatically influenced Bowden and would also come to shape his collaborative approach in the future – including his stewardship of technological education in the city. Bowden was aged forty-two and leading the computer sales division at Ferranti industries when public speculation began over his appointment as Principal of the Manchester Municipal College of Technology in 1953.

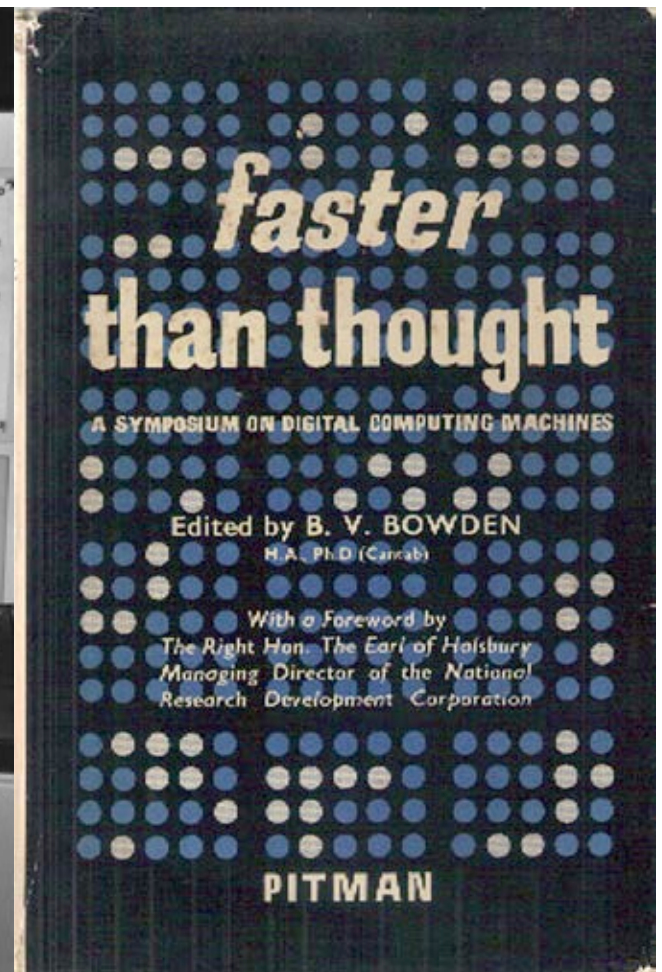
Bowden worked with Freddie Williams, Tom Kilburn and Peter Hall at the Telecommunications Research Establishment (TRE) during WWII. Bowden and Williams were of around the same age and about ten years older than Kilburn and Hall. Williams and his assistant Kilburn were electronic engineers who found themselves rapidly without purpose in August 1945 as hostilities drew to a close. They gravitated towards the Victoria University of Manchester where Max Newman, a Cambridge mathematician, took a post as Professor of Pure Mathematics in 1945. Williams was appointed by Newman as Chair of Electrical Engineering in November 1946 and Kilburn was 'on loan' from the Ministry of Supply. By June 1948 the assembled group of mathematicians and electrical engineers had realised Alan Turing's 'stored programme' principle in the machine now popularly known as *Baby*. Shortly afterwards Bowden and Hall took positions with Ferranti, also in Manchester.



NIMROD Brochure



Playing the game at the Festival



Faster Than Thought (1953)



University of Manchester Institute of Science and Technology (UMIST)

Images courtesy MMU Special Collections



Harold Wilson & Frank Cousins – ‘White Heat’
TUC Library Collections



Ministry of Technology Mobile Cinema
<https://commons.wikimedia.org/w/index.php?curid=14909846>

The NCC was created in the wake of the merging of government research and industrial organisations as the Ministry of Technology was formed. Wilson’s idea was that a large body of research scientists would have more chance of competing with US advances in science and technology.

The assembly of over 22,000 scientists by this initiative was a form of ‘economic statecraft’ in response to US strategies, rather than a move driven by the threat of war. Yet, it was the context of the Cold War that created the economic conditions for the need to ‘provide advice and support on software issues and computer services.’

Frank Cousins, the first Minister of Technology, publically announced the creation of a National Computing Centre (NCC) in Parliament in March of 1965. It was first reported that the base for such would be at the National Physical Laboratory in Teddington. Its functions were described as to 'set up a national library of computer programmes and to carry out research on the development of new programmes'. Manchester was eventually announced as the preferred location in December of 1965, though the exact details of the site were not revealed until January of 1966. The proximity to existing centres of expertise at the University and the Institute of Science and Technology (UMIST) were cited as important when making the decision.



ROF Risley from the air (1973)

<http://warrington.photomag.co.uk/rof-risley-filling-factory-no-6/>



UKAEA HQ Risley 1954 onwards

www.enuii.com

Professor Gordon Black was appointed as the first director of the NCC at the end of 1965, before its location had been announced. At the time of his selection he held two posts, one as professor of automatic data at UMIST, and another as technical manager (computing) at the UK Atomic Energy Authority (UKAEA) site at Risley near to Warrington. At Risley, Britain's first fully transistorised nuclear reactor was commissioned in July 1964. The governing council of the NCC was convened in May 1966. It was made up of representatives from government and industry. Amongst those chosen were Peter Hall, a director of International Computers and Tabulators (ICT – formed from Ferranti's computer division), Andrew St. Johnston, joint managing director of Elliot Automation, W.E. Scott, managing director of English Electric-Leo-Marconi Computers and F.J.M. Laver, director of the computer division of the Ministry of Technology. This grouping reflected the public-private enterprise envisaged by Ministry of Technology as one that would be established with central government funding but would ultimately attract its own revenue from the services provided. As such, the NCC was founded as a limited company.



Mancunian Way

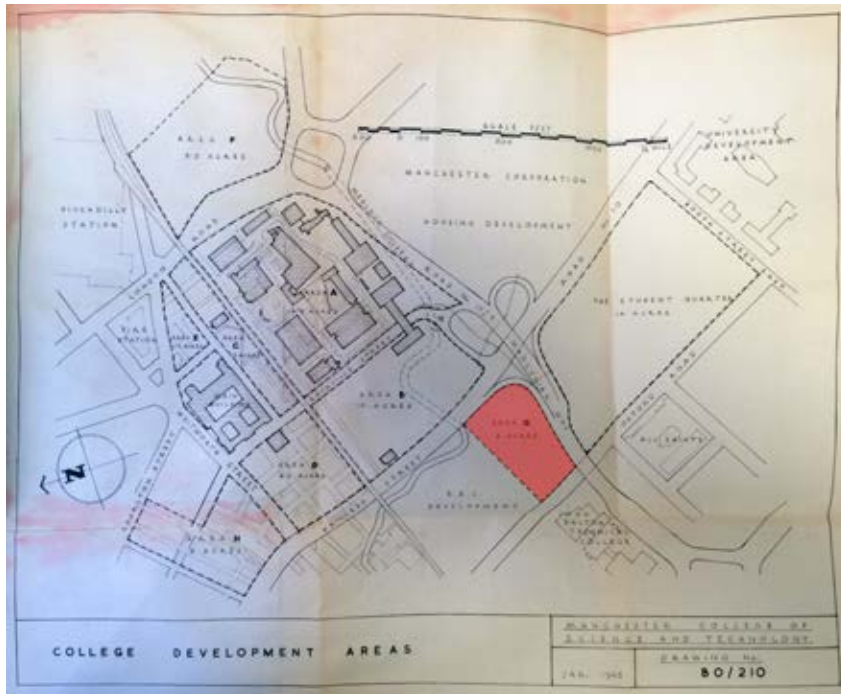
Scan from private collection

The proximity to existing centres of expertise at the University and the Institute of Science and Technology (UMIST) were cited as important when making the decision. The chosen site was between the new urban motorway, Link Road 17/7 (Mancunian Way) and a site selected for the BBC's northern headquarters on Oxford Road, to the south of the city centre. Its physical position was thus sandwiched between machines of mobility and communication, which, like the computing centre, epitomised post-war modernity.

Manchester Education Precinct Plan – Wilson Womerlsey 1967

Scan from private collection





UMIST Area G

University of Manchester Archives

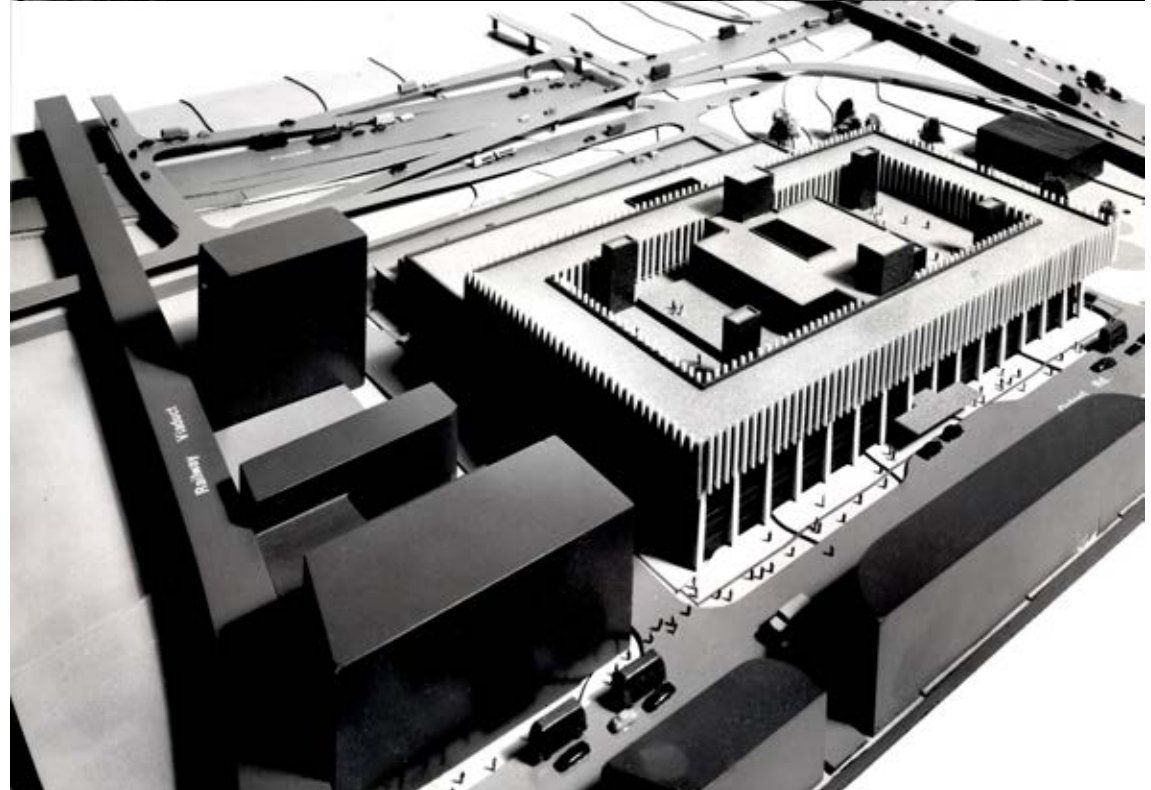


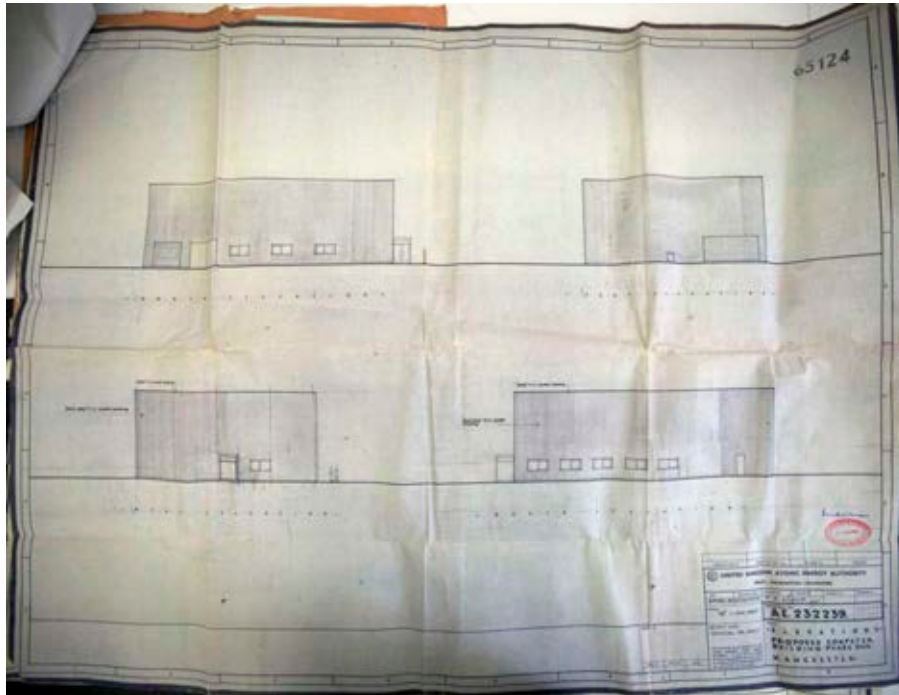
BBC North HQ & National Computing Centre

Manchester Evening News

In the Corporation's Approved Development Plan the 2.6-acre site was allocated to form part of the Higher Education Precinct and provisionally reserved in 1964 for development by the Institute of Science and Technology. Following a direct request from Ministry of Technology in 1965, the City and the Institute agreed that the location was 'ideally situated for this important national project'. The Ministry did not purchase the site; instead, it was leased from the Corporation by Central Government. The mechanisms of government created their own specific contractual circumstances; together they relate to those notions of interplay that are described here as regionality. Similarly, the procurement and delivery of the first phase of NCC construction would be forged from an existing series of relations, in personnel and in geography, which also emerged from state structures.

BBC North HQ
Courtesy BDP.





UKAEA designed National Computing Centre

Planning file at Archives+ Manchester Central Reference Library



The first incarnation of the National Computing Centre, UKAEA Architects, 1966. Image taken 1971.

Manchester Local Image Collection, ref. m59279. Photographer: H. Milligan

The contractual arrangements for the construction of the first phase were indicative of the urgent need to establish the NCC. In January 1966 before the council convened or the limited company formed, Ministry of Technology proposed that the UKAEA acted as agents (and architects) on their behalf. The design of the Computer Building, the first component of the centre, was 'virtually a replica of that at Culham' and delivered under the direction of R.S. Brocklesby, ARIBA on behalf of the Ministry of Technology. Brocklesby was also charged with negotiating the position of the Corporation and the University Grants Committee over the lease agreements for the site. Architects from UKAEA (directed by the Ministry of Technology) designed the first phase 'under considerable pressure'. Their solution was a proposed 20 storey tower. It was such a rapid decision to construct that there was not really a design brief and the interior plan for the tower was said to be 'left until the new board can be consulted'. For its first few months the NCC was actually based at Risley within the UKAEA estate.



The Mancunian Way – British Pathé (1967)

<https://www.youtube.com/watch?v=3drTk6rAzVI>

Renold Building, UMIST Cruickshank & Seward, 1962

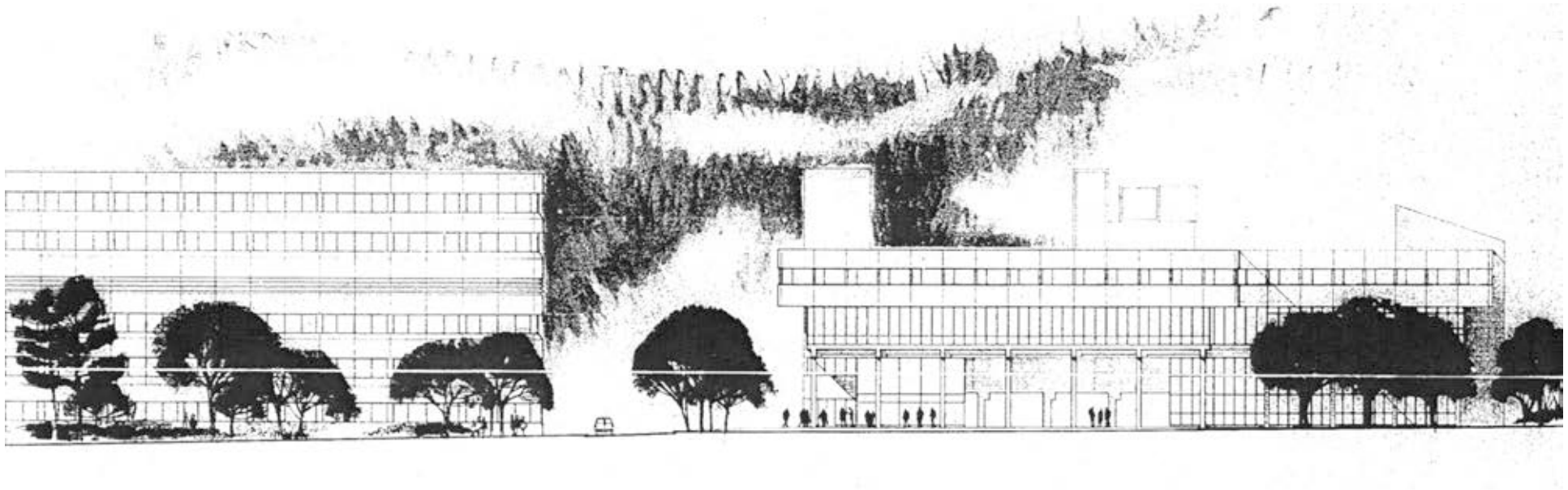
Courtesy MMU Special Collections



The National Computing Centre. Painting by Peter Sainsbury

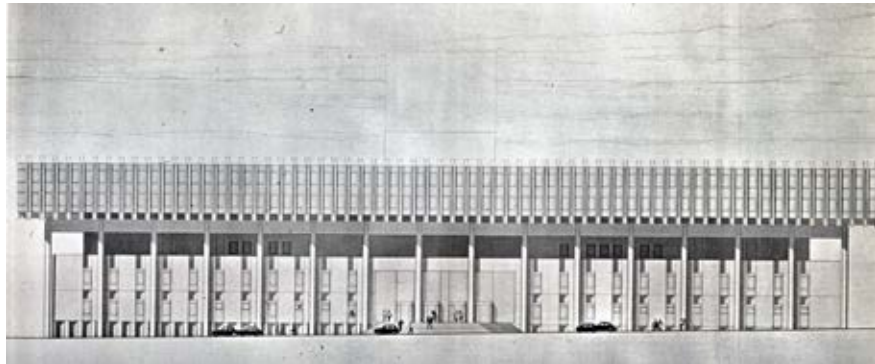
Courtesy MMU Special Collections





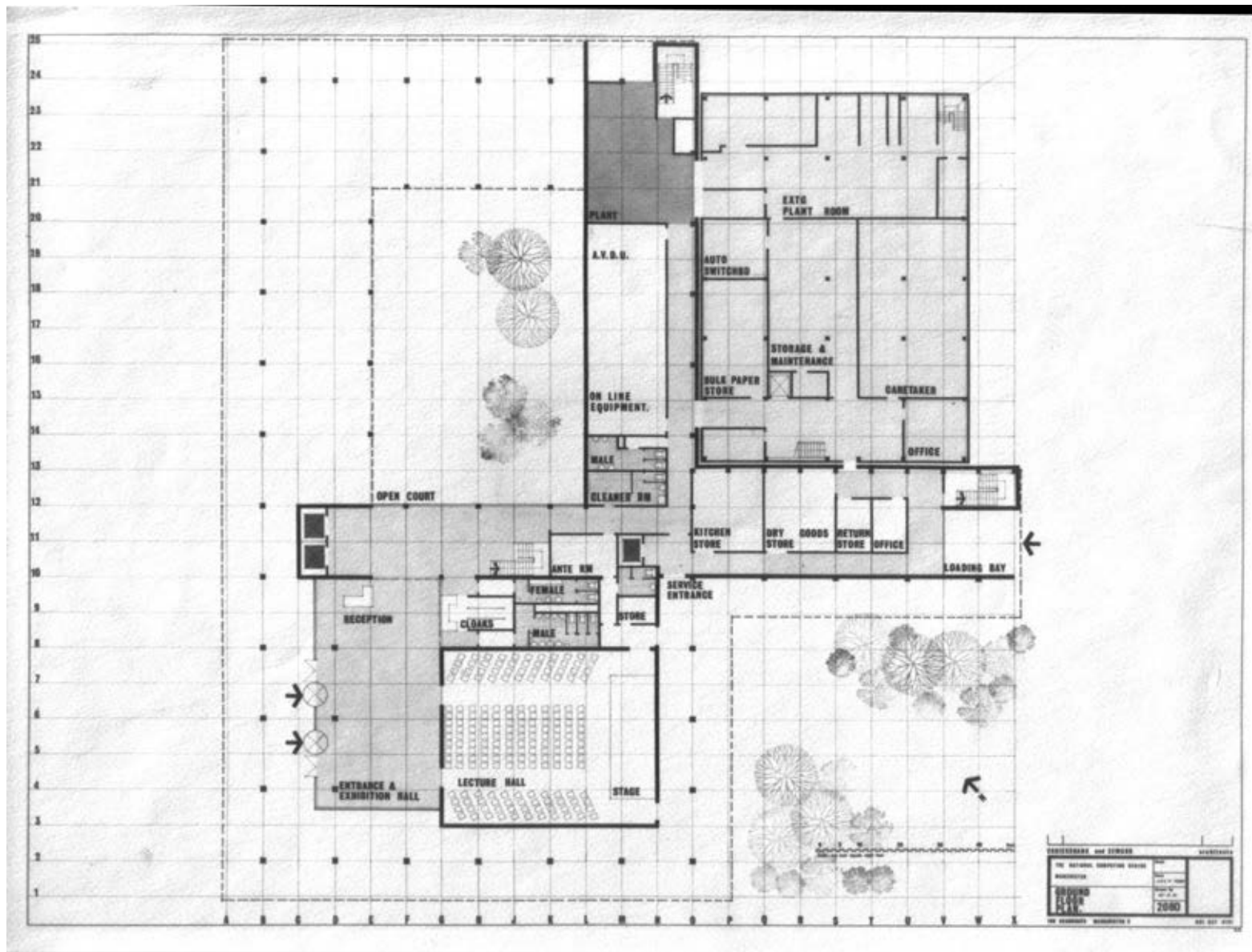
The National Computing Centre. Elevational drawing, Cruickshank & Seward

Courtesy MMU Special Collections



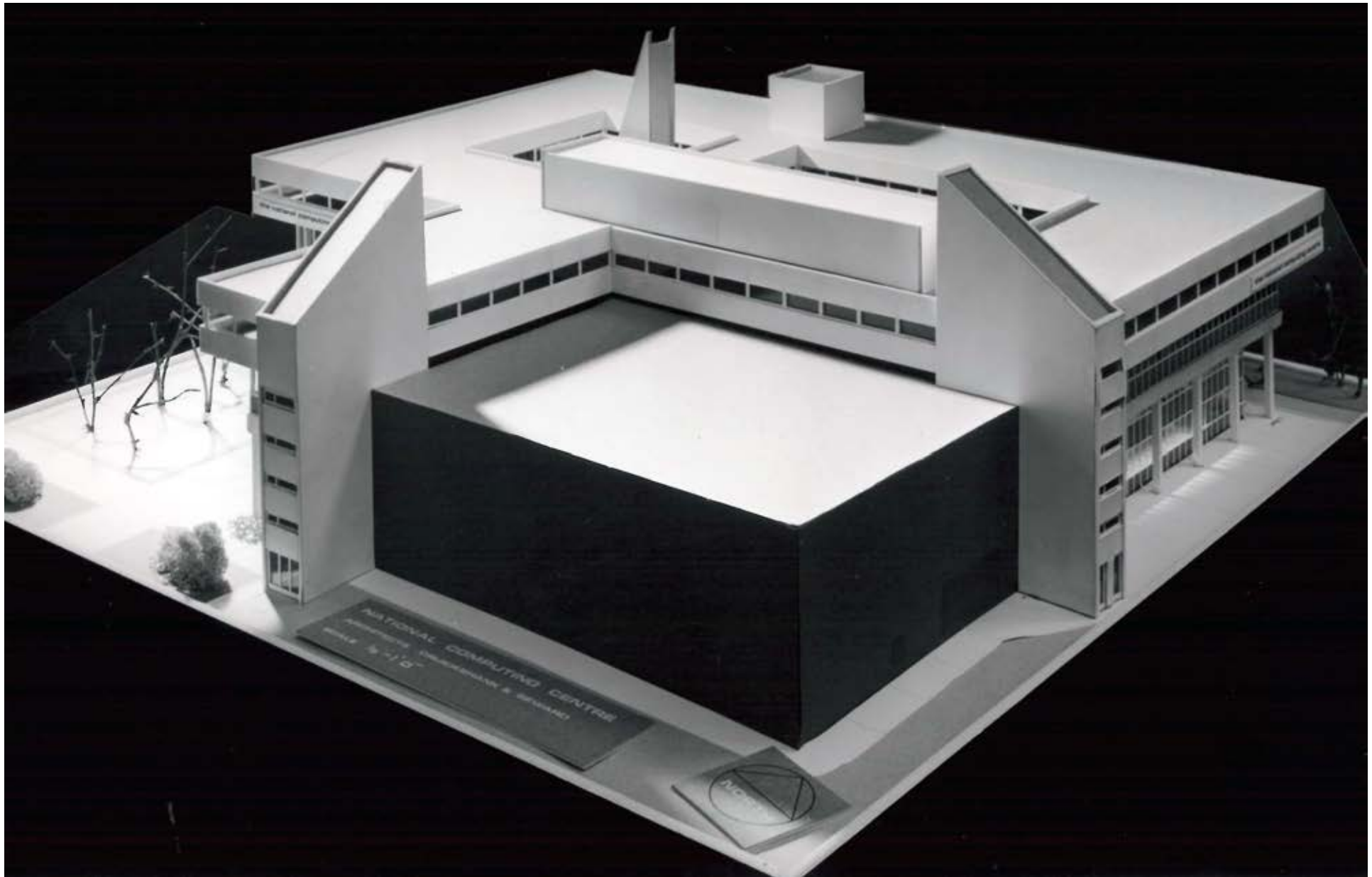
BBC North HQ. Elevational drawing, BDP.

Courtesy BDP.

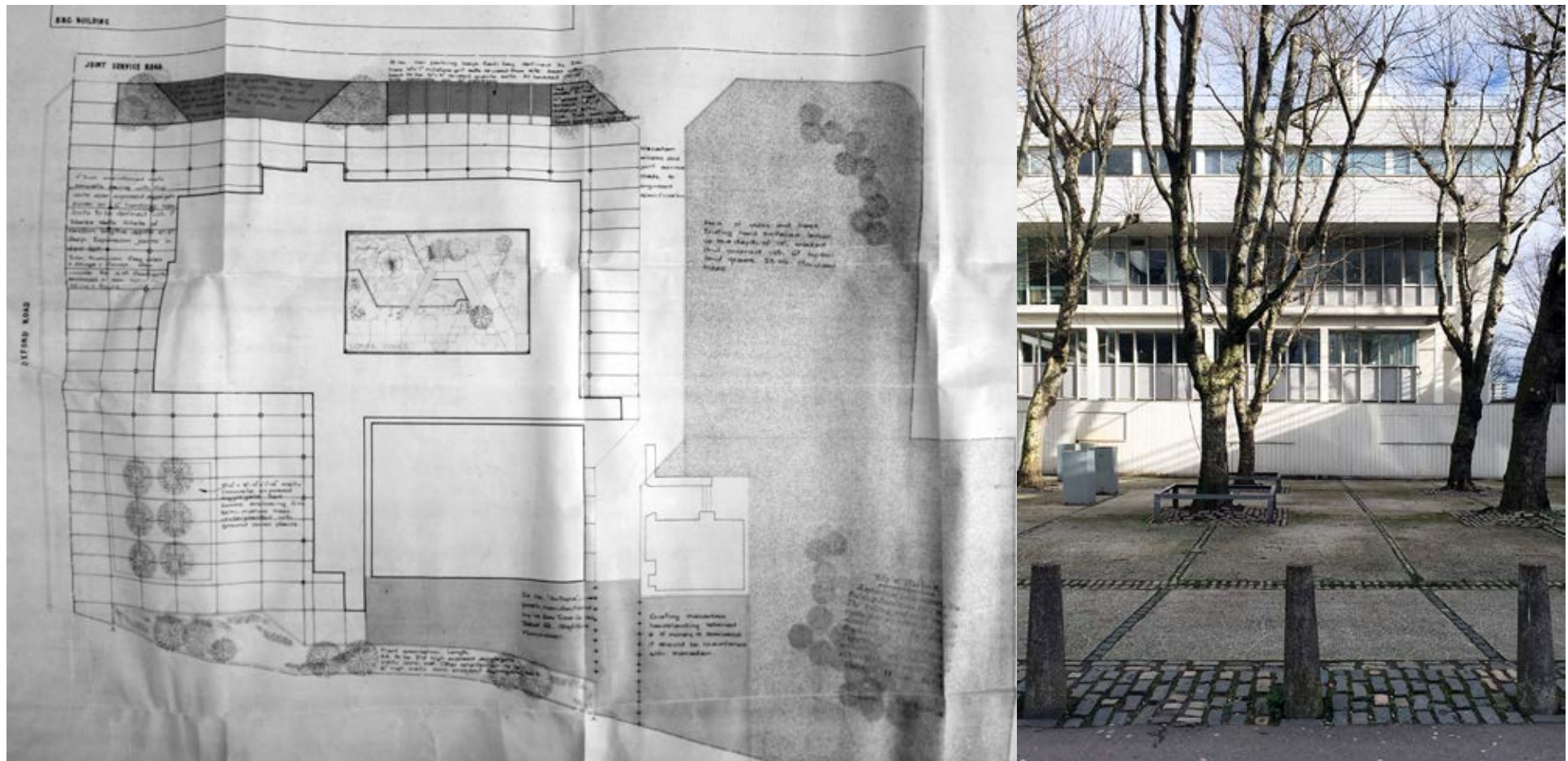


The National Computing Centre. Plan, Cruickshank & Seward
 Courtesy MMU Special Collections

The NCC was never a large enough organisation to have filled the 20-storey tower, but a building with some physical presence as a national centre was necessary. To the Ministry of Technology in 1967 'the NCC [was] an important element in the Government's declared policy of seeking to promote a rapid increase in the use of computers.



The National Computing Centre. Model, Cruickshank & Seward
Courtesy MMU Special Collections



Landscape plan, Derek Lovejoy & Partners, 1971.

Authors photograph. Drawing held at Archives+, Manchester Central Library. Building control plans, ref. 78018.

Structurally, the NCC was conventional, formed from reinforced concrete. An orthogonal square grid extended across the entire ground plan and columns were spaced on the nodes of the grid as required. The logic extended to the hard landscaping - cobbled sets picked out the column line of the structure and extended this line from the face of the building to the back of pavement and trees were planted in an aligned cluster. Much of the ground floor plan was arranged to align with this square grid too, though the upper floors were much less rigidly organised and walls were mostly partitions. The only deviation from the square grid and 90 degree angles was the landscape plan for the internal courtyard that used diagonal geometry to contrast. The internal court was echoed by another internal water garden, above the lecture theatre.



Promotional photograph from NCC pamphlet.

Scan from private collection

The court was really the only spatially remarkable image that the building could project. Other than the lecture theatre, most other space was conventional office type accommodation and so the marketing brochures of the NCC prominently featured a photograph of office workers enjoying the sunshine and water. In this sense the skin of the building was the branded identity of the NCC. Its drama was all on show and disguised a conventional interior - the logic of the grid aligned with this convention.



NCC

Courtesy Museum of Science and Industry

In formal terms, and in the context of regionality, the NCC was a negotiation between central government objectives (intangible) and local government projects (tangible). It was also a piece of technopolitics, big enough for the site, big enough for the Corporation and big enough for Ministry of Technology to appear credible as the building was finally completed in 1975, 10 years after the NCC was established.

The bright white tiled façade of the upper sections of the NCC made clear reference to computer age motifs and futuristic aesthetics. Superstudio's *Continuous Monument* (1969) and Stanley Kubrick's *2001, A Space Odyssey* (1968) both made dramatic use of pristine white gridded landscapes in their visions, but were actually a commentary on their present. The neutrality of the grid was an important aspect of its deployment and its use as a visual tool to carry messages about societal freedoms and controls in other media seems more relevant with historical distance than it probably did to the architects at the time. The grid also implied network and both network and control were in the minds of Ministry of Technology as they conceived the NCC and sponsored the computer industry. The Ministry understood that one of the 'social consequences' of the computer would be 'the much greater possibilities ... for government surveillance of the individual'.



NCC

Author's photo



NCC view from
Oxford Road

Author's photo

In the context of technopolitics, the NCC was a manifestation of central government policy and central government was the most powerful force acting upon its procurement. However, its realisation was a confluence of factors that can be assembled and understood through regionality. The site was a piece of the Corporation post-war jigsaw, requisitioned for national interests. Here I have shown that both the form and material of the building were a negotiation, or interplay, between national and local policy objectives and infrastructures. The orbit of agents and the orientation of their networks towards Manchester began in the TRE during the war. The NCC was given a home in Manchester because of the legacy of Turing, Williams, Newman and Kilburn that was mythologised by Bowden and perpetuated the notion of Manchester as the birthplace of the computer. If the building was a metaphor for the competencies and power of Ministry of Technology then the over-amplified physical stature of the building would be hot air, the drawn out process to completion would reflect the gestural nature of policy and the cloaking of the original building would be papering over the cracks. So, whilst the shining white form stood prominently against a new horizon and signified investment in technology, the long development of the institution, and the eventual construction of its headquarters, reveals an alternative picture of post-war urbanism and its relation to policy and political objectives.